THE UNIVERSITY OF ALBERTA

LOCUS OF CONTROL AND CAUSAL ATTRIBUTION FOR OTHER PEOPLE'S TRANSGRESSIVE BEHAVIOR

by

JANICE M. LEVINE

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

EDMONTON, ALBERTA

SPRING, 1986

Permission has been granted to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film.

The author (copyright owner) has reserved other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without his/her written permission.

L'autorisation a été accordée à la Bibliothèque nationale du Canada de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur (titulaire du droit d'auteur) se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation écrite.

ISBN 0-315-30176-7

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR JANICE M. LEVINE

TITLE OF THESIS LOCUS OF CONTROL AND CAUSAL ATTRIBUTION FOR OTHER PEOPLE'S TRANSGRESSIVE BEHAVIOR

DEGREE FOR WHICH THESIS WAS PRESENTED MASTER OF ARTS

YEAR THIS DEGREE GRANTED SPRING, 1986

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

(SIGNED) Janice Levine

PERMANENT ADDRESS:

3515 Bathurst St. #210

Toronto, Ontario

M6B 2Z4

DATED April 18 1986

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled LOCUS OF CONTROL AND CAUSAL ATTRIBUTION FOR OTHER PEOPLE'S TRANSGRESSIVE BEHAVIOR submitted by JANICE M. LEVINE in partial fulfilment of the requirements for the degree of MASTER OF ARTS.

Brendan Gail Kelly

Supervisor

S. David Pierce

Curt Hoffman

Date March 24, 1986

Abstract

Most of the research in the areas of attribution and locus of control has focused on achievement, conformity, and compliance. The relation of locus of control to other behavior, such as transgression has been neglected. Heider's (1958) concept of assimilative projection predicts that people will form attributions about other people that are consistent with their own beliefs when the others are perceived to be similar. The purpose of this study was to delineate the nature of the relationship between locus of control and causal attribution for transgressive behavior as predicted by the concept of assimilative projection.

As identified by the Rotter Locus of Control Scale, twenty externally controlled and twenty internally controlled undergraduate university men were asked to perform a throwing task. In order to manipulate perceptions of control, participants performed the throwing task either with their eyes open or with their eyes closed. After completing the task, participants were told that some people in the eyes closed condition had cheated and were asked to explain why this occurred.

The experimental manipulation of control was successful. Attributional measures revealed that the responses were primarily internal in causation and that the degree of internal causality differed as a function of the individual difference variable, locus of control, such that attributions for others' transgressive behavior were

opposite in nature to one's own beliefs in control. The possibility that attributions for transgressive behaviors may be different from attributions for prosocial behaviors was discussed. Also, the results were discussed in terms of Suls (1984) uniqueness and Heider's (1958) contrast concepts.

Acknowledgments

I would like to thank my supervisor, Dr. B.G. Rule whose support and guidance made this research possible.

Recognition is also due to Dr. C. Hoffman and Dr. D. Pierce who served as members of the examining committee.

In addition, special thanks is due to Dr. T. Johnson for his assistance in the computer processing of the data.

Finally, thanks are expressed to Dr. A. Dobbs; fellow graduate students, Cori Bobb and Sara Comish; my roommate, Eddy Gorek; and my family, Myrna and Joshua Levine, for their encouragement, friendship and support throughout the duration of this project.

Table of Contents

Chapter		Page
I.	INTRODUCTION	1
II.	Method	12
	A. Participants and Design	12
	B. Procedure	14
III.	Results	19
IV.	Discussion	36
V.	References	44
VI.	Appendix 1	48
VII.	Appendix 2	54
VIII.	Appendix 3	57
IX.	Appendix 4	60
X.	Appendix 5	63
XI.	Appendix 6	66
XII.	Appendix 7	71
XIII.	Appendix 8	74
XIV.	Appendix 9	76
XV.	Appendix 10	77
XVI.	Appendix 11	79
XVII.	Appendix 12	80

List of Tables

Table	Description	Page
1	Scoring Code	16
2	Mean Ratings of Perceptions of Control for Oneself (Q2 and Q9 Combined Score)	20
3	Correlations for Perceptions of Self and Others on Each Dimension	22
4	Mean Difference Scores (Self-Other) for Control over Throwing Accuracy	23
5	Mean Difference Scores (Self-Other) for Desire to Terminate Participation in the Task	25
6	Mean Difference Scores (Self-Other) for Control over Throwing Accuracy	26

7 Mean Ratings for Degree of Control over Throwing Accuracy 28

8 Inter-item Correlations for the Attribution Questionnaire.....30

9 Mean Response on the Summed Causal Attribution Questions as a Function of Throwing Condition x Locus of Control.....31

10 Means for ANOVA of % Free Responses.....33

11 Means for ANOVA of # Free Responses.....35

12 Inter-Item Correlations for Perception Questionnaire.....49

13 Task Perceptions as a Function of Throwing Condition.....54

14 Mean Ratings of Perceptions of Other People's Performance as a Function of Locus of Control x Throwing Condition.....55

15 Mean Ratings of Perceptions of the Amount of Control over One's Own Throwing Accuracy 56

16 Frequency Distribution of

Scores by Locus of Control and Throwing Condition.....57

17 Mean Scores for Perception Questions as a Function of Throwing Performance.....58

18 Analyses of the External Responses.....60

19 Analyses of the Internal Responses.....61

20 Analyses of the Difference Score Responses.....62

21 Analyses of the External Responses.....63

22 Analyses of the Internal Responses.....64

23 Analyses of the Difference Score Responses.....65

I. INTRODUCTION

In social learning theory it is posited that behavior is goal directed. People strive to attain or to avoid certain goals in their environment. As a result, people's behavior is guided by their reinforcement expectations. Whether people expect their behavior to result in either a reward or a punishment will affect how they behave. The effect of a reinforcement is dependent upon whether people perceive a causal relationship to exist between a behavior and its reinforcement. Rotter (1966) assumed that individuals differ in the degree to which they attribute reinforcements to their own actions. Rotter (1966) developed the construct, locus of control, to describe this process.

Locus of control is defined as an individual's generalized expectancy regarding which factors control reinforcements in social situations. Individuals who perceive reinforcement to be contingent upon their behavior are said to have a belief in internal control (Rotter, 1966). Individuals who do not perceive reinforcement to be mainly contingent upon their actions, but perceive reinforcement to be the result of luck, chance, fate, or to be under the control of powerful others are said to have a belief in external control (Rotter, 1966). Belief in personal control (or lack of it) is a generalized attitude or expectancy regarding the nature of the causal relationship between one's own behavior and its consequences. It should be noted that although Rotter (1966)

assumed a general tendency for people to be internal or external with respect to many classes of events, he also stipulated that expectancies within immediate situations must be assessed. He believed that even though people have generalized beliefs in control, situational factors could influence people's perceptions of control for a given situation. Thus, the distinction can be made between locus of control which refers to generalized expectancies and perceptions of control which refers to specific expectancies.

Attribution theory is concerned with how people explain and predict their own and other people's behavior. Thus, attribution refers to inferences about motivations which underly behavior and theories of attributions are essentially psychologial theories of causation. Several researchers (see Locke & Pennington, 1982, for a review) have attempted to distinguish between cause and reason; however, this issue is at present far from resolved. Cause refers to empirical regularities between behaviors; these regularities result in automatic or inevitable outcomes. As such, cause provides "explanation". Reason, on the other hand, refers to those aspects of the situation, the person, his actions or its consequences that persuaded the person to behave in a particular fashion (Locke & Pennington, 1982, 213). Thus, reason provides "justification". Researchers have tried to determine whether cause and reason represent logically distinct forms of explanation or whether reason is

merely one type of cause. The purpose of this thesis was to examine the locus of causality for the attributions that were generated for transgressive behaviors. Whether these attributions were explanations for, or justifications of, the transgressive behavior was not the purpose of this study. Therefore, the distinction between cause and reason was not made.

The effects of locus of control on attributions of success and failure have been studied extensively in the literature (Phares, 1957; Phares, 1962; Davis & Davis, 1972; Sobel, 1974; Weiner, Nierenberg, & Goldstein, 1976; Kahle, 1980). In such studies, locus of control is assessed using an individual difference locus of control measure such as the Rotter Internal-External Locus of Control Scale or the Nowicki-Strickland Internal-External Locus of Control Scale. Participants placing within the upper and lower percentiles on the locus of control scale are assigned to the external and internal groups for the experiment respectively. In many studies, participants are presented with some type of performance task and are either informed prior to the task that the task is one of skill or of chance (Phares, 1957; James, 1957; Rotter, Liverant, & Crowne, 1961; Phares, 1962), or informed of their success or failure after the task has been completed (Davis & Davis, 1972; Sobel, 1974).

In studies of performance that manipulate the skill-chance variable, the magnitude of expectancy change following success or failure was influenced by the perceived

locus of control of the task. Phares, Wilson, and Klyver (1971) studied attributions of blame for poor versus successful performance as a function of locus of control. Internally controlled persons were less prone to blame forces outside themselves for task failure than were externally controlled individuals. In these studies, self-attributions differed as a function of locus of control. People tended to make causal attributions for their behaviors that were consistent with their beliefs in control.

Studies of locus of control and attribution have also been conducted examining attributions for other people's behavior. Evidence suggests that perceptions of control apply not only to a person's self-evaluation but also to the individual's perception of other people (deCharms, 1968; deCharms, Carpenter & Kuperman, 1965; Phares & Wilson, 1972; Sosis, 1974). Phares and Wilson (1972) and Sosis (1974) used an automobile accident paradigm where severity of accident and driver's intent were manipulated. In both studies, internally controlled individuals attributed more personal responsibility to the driver of the car than did externally controlled individuals.

Phares and Lamiell (1975) had participants with internal and external control beliefs decide upon the amount of help and financial assistance to give to hypothetical clients identified as an ex-convict, a war veteran, and a welfare recipient. Internally controlled individuals were

significantly less willing than externally controlled individuals to provide clients with help, money, understanding, or sympathy. Phares and Lamiell concluded that people with internal control beliefs were less prone than were people with external control beliefs to regard people in need as deserving of assistance.

Kaiser (1975) examined the causal attributions of people who were high, medium, or low in perceived internal control on Rotter's Locus of Control Scale. Participants judged the degree to which they thought three grades on a classroom examination (their own, the highest grade in the class, and the lowest grade in the class) resulted from effort and ability (internal factors) as opposed to type of test and luck (external factors). Kaiser found that causal attributions were similar for one's own and for others' exam results along the locus of control dimension. Individuals with internal control beliefs made causal attributions for themselves and for others in a manner consistent with their beliefs. Individuals with external control beliefs attributed their own and others' exam results to external factors. Individuals with medium internal-external locus of control scores were found to make internal attributions at a level between individuals with internal and external control beliefs. Thus, participants' attributions for their own and others' exam results were congruent with their beliefs in control. As a result, one can conclude that causal attributions for academic performance vary as a function of

the individual difference variable, locus of control.

This literature suggests that internally controlled people perceive other people to be more responsible for their plight than do externally controlled people. However, because researchers have used a correlational design (locus of control or perceptions of control were not manipulated), a causal relationship between causal attribution and locus of control cannot be inferred. The proposed research will clarify whether people's beliefs in control have a causal effect on the attributions they generate.

Heider (1958), through his concept of assimilative projection, provided a rationale for examining causal attributions as a function of individual differences. He proposed that people believe that whatever conditions affect one individual must also influence others. Thus, although people may explain their own behavior as a response to situational factors while explaining the behavior of other people as indicative of their disposition (Jones & Nisbett, 1972), the research cited previously (e.g., Kaiser, 1975) has revealed that people do not always make situational attributions to themselves and dispositional attributions to others. Rather, attributions are made in a manner consistent with the individual attributor's belief in control. Individuals with an internal locus of control appear to make internal causal attributions for their own and for other people's behavior. Likewise, individuals with an external locus of control appear to make external causal attributions

for their own and for others' behavior.

Much of the research in the area of attribution and locus of control has focused on conformity, compliance, and achievement, which are socially acceptable behaviors. However, early research with locus of control was concerned with the study of deviant behaviors and deviant populations, for example, prison populations (Seeman, 1963; Lefcourt & Ladwig, 1966; Kiehlbauch, 1967). These studies were concerned with the relationship between locus of control in prisoners and their degree of alienation while in prison (Seeman, 1963), and with changes in perceptions of control during incarceration (Kiehlbauch, 1967). The studies examining locus of control in deviant populations did not explore the implications of these beliefs for attribution theory. Thus, one unanswered question is whether Heider's (1958) concept of assimilative projection applies to transgressive behavior.

The purpose of this study was to examine whether participants' perceptions of personal control affects their perceptions of, and attributions for, the control other people have over their own behavior. Moreover, I wished to examine this question in the context of transgressive cheating behavior.

A modified version of Julian, Lichtman, and Ryckman's (1968) throwing task was used to manipulate participants' experience of control in either an internal or an external direction. They blindfolded participants to manipulate the

degree of their control in a dart throwing task. In the present study, pre- and post-measures of perceived control were recorded so that both generalized and specific control beliefs could be assessed and participants were required to attribute causes to the cheating behavior of hypothetical participants.

According to Heider's (1958) notion of assimilative projection, people will project their beliefs onto others if they perceive the others as similar to themselves. If this is true, then how we perceive control for a given situation, that is, whether we do or do not believe that we have control over our behavior in the situation should be projected onto others if we perceive them to be similar. If we perceive ourselves as having control in a given situation then we should perceive that others would also have control in the same situation. Based on this line of reasoning and assuming perceptions of similarity to exist, it follows that the attributions for other people's cheating should be consistent with the attributor's perceptions of control for the throwing task. Thus, participants' attributions were expected to differ as a function of the throwing condition to which they were assigned (the throwing conditions were designed to affect perceptions of control not generalized beliefs in control) and as a function of the individual difference variable, locus of control. Thus, if people perceive that they have control over their throwing performance, they should be more likely to assume that other

people also have control over their throwing performance. It follows that if people who have a great deal of control over their throwing performance cheat at the task, others should assume that the cheating was influenced by some personal characteristic rather than some situational influence. The reverse is also believed to be true. This finding would not only substantiate the importance of situational factors for the construct of control, but would also address the role played by situational and dispositional factors in the formation of attributions.

Hypotheses

The purpose of the present study was to test Heider's concept of assimilative projection as it pertained to control beliefs and causal attribution for other people's transgressive behavior. The first hypothesis addressed the role of locus of control in the causal attributions made to other people's behavior. Based on Heider's concept of assimilative projection, it was expected that the attributions for the cheating behavior of other people would be made in a manner that was consistent with the attributor's belief in control. Individuals with internal control beliefs were expected to ascribe internal causes to other people's cheating. Similarly, individuals' with external control beliefs were expected to ascribe external causes to other people's cheating.

Perceptions of control were expected to change as a result of situational manipulations. When participants were

placed in situations where the locus of control was external to them (i.e., situations where luck is a primary factor as in the eyes closed condition), their perceptions of control were expected to shift to become more external. Similarly, when participants were placed in situations where the locus of control allowed for internal control (i.e., situations where skill and ability could be exerted as in the eyes open condition), perceptions of control were expected to shift to become more internal. Furthermore, because internally controlled people are more likely than are externally controlled people to view the outcome of events as self-relevant (Lefcourt, 1976), they should be more sensitive to the conditions under which their behavior is and is not reinforced. Therefore, it was predicted that internally controlled people would be more influenced by situational manipulations of control than would externally controlled people. Hence, interactions were anticipated between the individual difference variable, locus of control, and the manipulated control throwing conditions. These differences in perceptions of control were expected to be reflected in the causal attributions generated for other people's behavior. Internally controlled individuals in the eyes open throwing condition were expected to generate the greatest number of internal attributions while internally controlled individuals in the eyes closed throwing condition were expected to generate the greatest number of external attributions. Individuals with external beliefs in control

were expected to generate causal attributions with a locus of causality between the two internal groups.

II. Method

A. Participants and Design

Forty male students enrolled in Introductory Psychology at the University of Alberta participated in this study in partial fulfillment of optional course credit. From the 158 participants who responded to the Rotter Locus of Control Scale (M=9.4, range=0-20), 20 participants were selected from the lower and upper thirds of the distribution respectively. The mean locus of control score for internally controlled participants was 4.4 (range=2-7) and the mean locus of control score for the externally controlled participants was 14.4 (range=12-19).

A 2x2 factorial design with two levels of locus of control (internal and external) and two levels of throwing condition (eyes open and eyes closed) assigned between subjects was utilized. Participants were randomly assigned to one of the two experimental conditions under the constraint that there be ten internally controlled and ten externally controlled participants in each condition. Four dependent measures were employed: performance on the throwing task, a questionnaire pertaining to perceptions of one's own and others' performance, and two measures of causal attribution for other people's cheating behavior.

Materials

All participants were pretested with the Rotter Locus of Control Scale which is presented in Appendix 6. Two

additional questionnaires were used. The first questionnaire, referred to as the Perception Questionnaire, consists of 20 seven-point Likert scaled items designed to measure participants' perceptions of their own and other participants' performance. Ten of the 20 items pertain to the participants' own performance; the other ten items pertain to the participants' perceptions of other people's performance. The questionnaire measures perceptions of control, achievement, motivation, interest, level of difficulty, task anxiety, level of frustration, and desire to terminate participation. The items are presented in Appendix 7.

The second questionnaire, the Causal Attribution Questionnaire, consists of six attributional statements. Participants were asked to use a 7 point scale to indicate the likelihood that each statement explained the real reason for people's cheating on the task. The scale ranged from (1) very likely to (7) very unlikely. This questionnaire is presented in Appendix 8.

Norms for the locus of causality for each statement in this questionnaire were obtained from nine independent raters. The raters were asked to rate each statement for its locus of causality using a 7 point scale. They were told that some of the statements reflected a person's attempt to gain control over a situation and as such reflected a trait, a disposition, or a characteristic of the person. Scores ranged from 1 (dispositional) to 7 (situational).

Participants were encouraged to use the full scale of scores. An example of each type of response was provided to standardize the scoring.

The norming data revealed that statement 4 (X=1.2) and statement 5 (X=1.1) reflected an internal locus of causality. The reason for the cheating presented in these two statements reflected either the cheater's attempt to gain control over the task or some personal characteristic of the cheater. Two of the remaining four statements (statement 6, X=5.2; statement 2, X=5.0) were found to reflect an external locus of causality that is either a situational demand or a chance occurrence. The remaining two statements tended towards an external locus of causality (statement 1, X=4.8; statement 3, X=4.8) and were not used in subsequent data analyses. For all analyses, the scale was reversed for the two external items; these statements were scored with 1 representing an internal response and 7 representing an external response.

Other materials used included a stopwatch, a 17" by 24" Masters of the Universe foam dart board with two velcro throwing balls, and writing materials.

B. Procedure

At the beginning of the study, participants were informed of the ostensible purpose of the study: an examination of spatial accuracy as a function of memory decay. Participants were told that the investigator was

interested in the effects of memory decay on one's ability to recall accurately and react to the spatial environment. They were told the following:

"This study is designed to measure the effects of memory decay or forgetting on people's ability to recall accurately and react to their spatial environment. In order to test this, a throwing task is being used. All participants are assigned to one of two conditions. Some participants are asked to perform the task with their eyes open. This will provide a baseline from which comparisons will be made. Other participants are asked to perform the task with their eyes closed. This provides a measure of ability to recall and react to the spatial environment based on memory for or mental representation of the environment.

It is well known that forgetting occurs over time. In order to get a representative sampling of memory decay or forgetting, you will be asked to throw two balls, one at 3/4 minutes and the other at 2 minutes. I will call out when it is time for you to throw each ball. Until that time, it is important that you concentrate only on the throwing task."

In order to manipulate perceptions of control a ball throwing task was used. Participants who performed the task with their eyes closed were assigned to the external control throwing condition; participants who performed the task with their eyes open were assigned to the internal control

throwing condition. All participants threw two balls, at a target which was located ten feet away, at delays of 3/4 and 2 minutes from the beginning of each trial. Three trials were given and the results for each attempt were recorded.

Throwing accuracy was scored as a function of how close to the center of the Masters of the Universe target the ball was thrown. If the target was completely missed, a score of 0 was given, otherwise the following scores were applied:

Table 1

Scoring Code

Area	Score
blue area	10
blue/yellow border	15
yellow area	20
yellow/red border	25
red area	30
red/orange border	35
orange area	40
orange/center border	45
center	50

Following the completion of the throwing task, participants were asked to complete the Perception Questionnaire. Participants were told that the questionnaire was being administered in an attempt to account for some of the variance that may occur in the performance of the throwing task.

After completing the Perception Questionnaire, participants were informed that the researcher had been experiencing difficulty with the study and wanted to solicit their help. Participants were told that a number of people

in the eyes closed condition had opened their eyes and had peeked while performing the throwing task. Participants were informed that this had serious consequences for the study because the data either had to be discarded or used in an "after the fact" fashion. The researcher emphasized that discarding the data was not a favored option because the researcher's time and effort would have been wasted. Participants were told that the researcher preferred to include the results from the people who cheated in the data analysis since their performance might be expected to fall between participants in the eyes open and the eyes closed conditions. However, this third group was not part of the design of the study and a rationale for their peeking was needed if their data was to be included.

Participants were informed that the researcher had tried to generate a number of her own explanations for people's peeking during the task. Because she was able to generate only a few plausible reasons, participants were being asked to help the researcher and to explain why other people had peeked.

Participants were asked if they could think of reasons why people would peek while performing the throwing task. As responses were generated, the researcher informed participants that the responses were being written down so that the researcher would be able to look at them at a later date, when writing up the results. After the free response causal attributions were elicited, the researcher asked

participants to complete the brief Causal Attribution Questionnaire. Participants were told that the questionnaire was being used because the researcher had been uncertain as to whether people would have been able to generate reasons for people's peeking.

After completing the questionnaire, participants were questioned for suspiciousness, fully debriefed, thanked for their participation, and dismissed. Three participants expressed suspicions about the cover story of the study. Their results were replaced with the inclusion of three niave participants.

III. Results

Manipulation Checks

Perceptions of Control

Questions 2 and 9 from the Perception Questionnaire were combined into one score and were entered into a 2 (locus of control) x 2 (throwing condition) between groups analysis of variance to determine whether the manipulation of control was effective. A main effect of throwing condition was found, $F(1,36)=5.06$, $p<.05$. Participants in the eyes open throwing condition perceived themselves to have more control ($M=7.05$) than did participants in the eyes closed throwing condition ($M=8.60$).

A significant interaction between locus of control and throwing condition, $F(1,36)=5.06$, $p<.05$, was also found. This interaction is presented in Table 2. People with internal control beliefs who were assigned to the eyes open condition perceived themselves to have more control than did people with internal control beliefs who were assigned to the eyes closed condition. People with external control beliefs did not differ in their perceptions of control.

Table 2

Mean Ratings of Perceptions of Control for Oneself
(Q2 and Q9 Combined Score)

		Condition	
		Open	Closed
Locus of Control	Internal	6.40a	9.50b
	External	7.70ab	7.70ab

Note. A response of 1 indicated lots of control; a response of 7 indicated no control.
Means with different subscripts differ significantly at $p<.05$ by Neuman Keuls post hoc analysis.

From these results, one can conclude that the throwing conditions were effective in manipulating participants' perceptions of control even though the instructions may have biased participants' perceptions of the task. The instructions were that "This provides a measure of ability to recall and react to the spatial environment based on memory for or mental representation of the environment". Nonetheless, as hypothesized, people with internal beliefs in control were found to be more sensitive to the situational manipulation than were individuals with external beliefs in control.

Major Dependent Measures

Perceptions of Similarity

Heider's (1958) concept of assimilative projection is based on the assumption that people perceive similarity between themselves and the others about whom attributions are being made. To test this assumption and determine

whether participants perceived other people as similar, participants were asked for their perceptions of their own and other participants' performance. Questions on the Perception Questionnaire relating to perceptions of the task for both oneself and for others were examined along the dimensions of degree of skill, perceptions of performance achievement, level of motivation, degree of interest, level of task difficulty, degree of anxiety, degree of frustration, perceptions of control over throwing accuracy, and desire to terminate task participation. Each measure examined a different dimension of perceived similarity between the participants themselves and the other participants in the study, and was collected before the participants were made aware that several people had cheated on the task.

The measures for each dimension were correlated with each other and with the exception of the questions that dealt with perceptions of individual performance on the task (questions 3 and 13, $r=.17$), the correlations varied between .42 and .75 ($p<.01$). See Table 3 for the correlations. These results indicate that there is a significant positive relationship between participants' perceptions of their own and other participants' performance.

Table 3

Correlations for Perceptions of Self and Others on Each Dimension

Dimension	Correlation	p
skill-luck	.49	<.01
performance achievement	.17	<.10
motivation	.63	<.01
interest	.75	<.01
difficulty	.69	<.01
anxiety	.49	<.01
frustration	.73	<.01
control over accuracy	.42	<.01
desire to terminate participation	.73	<.01

To determine whether the differences in participants' perceptions of their own and others' performance differed significantly, a difference score for each dimension on the Perception Questionnaire was calculated by subtracting the score for perceptions of others from the score for perception of self. The difference score for each dimension was then entered into separate 2 (locus of control) x 2 (throwing condition) between groups analysis of variance. This series of analyses revealed a significant locus of control x throwing condition interaction, $F(1,36)=4.57$, $p<.05$, for participants' perceptions of control over throwing accuracy. As Table 4 reveals, internally controlled individuals in the eyes closed throwing condition tended to perceive a larger difference in the degree of control over accuracy between themselves and others than did internally controlled people in the eyes open condition. Externally controlled individuals in the eyes closed condition tended

to perceive that they would have more control over their throwing accuracy than would others.

Table 4

Mean Difference Scores (Self-Other) for Control over Throwing Accuracy

		Throwing Condition	
		Open	Closed
Locus of Control	Internal	0.20a	0.90a
	External	0.70a	-0.50a

Note. The difference score was calculated by subtracting the other person scores for control over throwing accuracy (Q19) from self scores (Q9).
Neuman Keuls analysis indicated no significant differences between means at $p<.05$.

The analyses of the difference scores of perceptions of self and perceptions of others for skill-luck, performance achievement, motivation, interest, difficulty, anxiety, frustration, and desire to terminate participation, revealed no significant differences among conditions.

In this study, participants received visual feedback about their throwing performance although they were not told whether they performed well or poorly in relation to other people. Nonetheless, their own performance may have influenced their perceptions of the task. For purposes of analysis, participants were divided into groups of high scorers (total throwing score was greater than or equal to 200), medium scorers (total throwing score was greater than 100 and less than 200), and low scorers (total throwing score was less than or equal to 100). The self-other

perception difference scores were then entered into separate 3 (throwing performance) x 2 (locus of control) between groups analysis of variance, one for each dimension on the Perception Questionnaire.

These analyses revealed a main effect of throwing performance on perceptions of task anxiety, $F(2,34)=2.31$, $p<.05$. Participants who performed fairly well perceived that they would be more anxious than would other participants (Mean Difference=-1.00; $t(34)=-10.32$, $p<.05$) and perceived the greatest degree of difference between their own and others' level of anxiety. Participants who performed very well perceived that they would also be more anxious than would other participants but to a lesser degree than participants who performed fairly well (Mean Difference=-0.45; $t(34)=-3.41$, $p<.05$). Participants who performed least well perceived that they would be less anxious than they thought other participants would be (Mean Difference=0.57; $t(34)=5.49$, $p<.05$).

A locus of control x throwing performance interaction, $F(2,34)=3.44$, $p<.05$, was revealed for the difference measure of participants' desire to terminate their participation in the task. As Table 5 reveals, with the exception of externally controlled individuals who performed fairly well and internally controlled individuals who performed very well, all participants perceived that other participants would want to terminate their participation in the task more than they themselves did. The externally controlled medium

achievers perceived that they would desire to terminate their participation more than others would while no differences in perceptions were found for the internally and externally controlled high achievers.

Table 5

Mean Difference Scores (Self-Other) for Desire to Terminate Participation in the Task

		Achievement		
		Low	Medium	High
Locus of Control	Internal	0.43*	1.00*	0.00
	External	0.43*	-0.63*	0.20

Note. The difference score was calculated by subtracting the score for perceptions of other's desire to terminate participation from the score for one's own desire to terminate participation.
A raw score of 1 indicated very much want to stop; a raw score of 7 indicated did not even consider stopping.
Neuman Keuls analysis indicated no significant differences between means at .05.
* indicates that the mean difference is significantly different from zero; smallest significant $t(34)=2.15$, $p<.05$.

A locus of control x throwing performance interaction, $F(2,34)=3.81$, $p<.05$, was revealed for the difference measure of participants' perceptions of the degree of control over throwing accuracy. As Table 6 reveals, internally controlled low and medium achievers and externally controlled high achievers perceived that others had more control over their throwing accuracy than did they. No differences in perceptions of control over throwing accuracy were found for the internally controlled high achievers and the externally controlled low and medium achievers.

Table 6

Mean Difference Scores (Self-Other) for Degree of Control over Throwing Accuracy

		Achievement		
		Low	Medium	High
Locus of Control	Internal	1.00*	0.86*	-0.33
	External	-0.29	-0.25	1.20*

Note. The difference score was calculated by subtracting the score for perceptions of other's control over throwing accuracy from the score for one's own degree of control over throwing accuracy.
A raw score of 1 indicated lots of control; a raw score of 7 indicated no control.
Neuman Keuls analysis indicated no significant differences between means at .05.
* indicates that the mean difference is significantly different from zero; smallest significant $t(34)=3.07$, $p<.05$.

A 2 (locus of control) x 2 (throwing condition) x 2 (self/other) analysis of variance was also completed to further clarify the nature of participants' perceptions of similarity between themselves and the other participants. The Perception Questionnaire items were entered into this analysis for each factor and the results are reported below. A main effect of self/other was found, $F(1,36)=10.91$, $p<.01$, for level of task interest. Participants perceived themselves to be more interested in the task (M=3.55, where 1=very interested) than they perceived others to be (M=4.05). A main effect of self/other was found, $F(1,36)=16.61$, $p<.01$, for degree of motivation. Participants perceived themselves to be more motivated by the task (M=3.10, where 1=very motivated) than they perceived others

to be (M=3.78).

A main effect of self/other was found, $F(1,36)=19.60$, $p<.01$, for perception of performance achievement. Participants believed that other people would perform the throwing task better (M=3.78, where 1=very well) than did they (M=4.83).

A main effect of self/other was found, $F(1,36)=5.92$, $p<.01$, and a main effect of throwing condition was found, $F(1,36)=8.37$, $p<.01$, for perceptions of how much skill vs luck influenced the throwing performance. Participants perceived that their own performance was less influenced by skill and more influenced by luck (M=3.80, where 1=skill) than they believed would be the performance of other participants (M=3.33). Further, people in the eyes open condition perceived there to be more skill involved in the task (M=3.13) than did people in the eyes closed condition (M=4.00).

A significant three-way interaction of locus of control x throwing condition x self/other was found, $F(1,36)=4.57$, $p<.05$, for perceptions of control over throwing accuracy. The mean values are presented in Table 7. The Newman-Keuls post hoc comparison test revealed that internals assigned to the eyes open and eyes closed conditions differed in their perceptions of the amount of control they had over their throwing accuracy. Individuals with internal control beliefs who were assigned to the eyes open condition perceived a greater degree of control over their throwing accuracy than

did individuals with internal control beliefs who were assigned to the eyes closed throwing condition. A second difference in perceptions of control over throwing accuracy was also revealed by the Newman-Keuls analysis. Perceptions of one's own control differed between individuals with internal and external control beliefs who were assigned to the eyes closed throwing condition. For people assigned to the eyes closed condition, participants with internal control beliefs perceived themselves as having less control over their throwing accuracy than did participants with external control beliefs. These findings suggest that internally controlled individuals are more sensitive to situational demands than are externally controlled individuals.

Table 7

Mean Ratings for Degree of Control over Throwing Accuracy

		Locus of Control			
		Internal		External	
		Self	Other	Self	Other
Throwing Condition	Open	3.40a	3.20a	4.20ab	3.50a
	Closed	4.90b	4.00ab	3.60a	4.10ab

Note. A response of 1 means lots of control. Means with different subscripts differ significantly at $p<.05$ by Newman-Keuls post hoc analysis.

In conclusion, the results of these difference score analyses in combination with the correlational data that was presented earlier suggest that the overall perceptions of oneself and others with respect to the throwing task were

not dissimilar.

The Perception Questionnaire responses were recorded before participants were aware that other participants had cheated at the task. Participants' perceptions of the hypothetical cheaters were not measured directly. However, once aware of the cheating, several participants commented on their surprise that people would cheat on the task because not only had they themselves not cheated, but the thought of cheating had not even occurred to them. As a result of the data analyses and these comments, the exact relationship between perceptions of self and perceptions of others particularly those hypothetical participants who cheated could not be ascertained.

Causal Attribution Questionnaire

The Causal Attribution Questionnaire was used to measure the locus of causality in participants' attributions for other people's transgressive behavior. This questionnaire consisted of six attributional statements. Two of the statements were scored as internal in causality, two of the statements were scored as external in causality, and two of the statements were neither clearly internal nor clearly external in causality. These latter two statements were excluded from all analyses. In order to determine the reliability of this measure, an inter-item correlational analysis was computed. The results of this analysis are presented in Table 8.

Table 8

Inter-item Correlations for the Attribution Questionnaire

	Attributional Statements					
	1	2	3	4	5	6
Statement 1						
Statement 2	-.15					
Statement 3	.09	.21				
Statement 4	.42**	.15	.09			
Statement 5	.16	.34*	.24	.55**		
Statement 6	-.17	.19	-.15	.12	.01	

Note. ** indicates $p<.01$; * indicates $p<.05$.

The inter-item reliabilities indicated that the items in the questionnaire were not correlated. For this reason, separate 2 (locus of control) x 2 (throwing condition) analyses of variance were computed for each attributional statement as well as a 2 (locus of control) x 2 (throwing condition) analysis of variance for the summed causal attribution questions. These analyses revealed no differences in attributions as a function of the participants' perceptions of control, although the mean values of the attributional responses were in the direction predicted. Table 9 presents the mean responses for the summed causal attribution analysis.

T-test analyses were conducted on the means of the summed responses to determine whether they differed significantly from the median of the summed scale. All t-test analyses yielded significant differences (smallest $t(34)=-3.59$, $p<.05$). We should, however, only conclude that there was a trend toward accepting internal as compared to

external causal attributions as explanations for other people's transgressive behavior. Nonetheless, this tendency to attribute internal (dispositional) explanations to others has been addressed by Jones and Nisbett (1972). Their actor-observer theory postulates that people tend to explain their own behavior in terms of the situation and the behavior of other people in terms of their dispositions. It is interesting to note that given the low reliability of the Attribution Questionnaire, the data (see Table 9) suggest that the role of individual differences, particularly, locus of control, merits further investigation with respect to attribution theory and the actor-observer difference.

Table 9

Mean Response on the Summed Causal Attribution Questions as a Function of Throwing Condition x Locus of Control

		Throwing Condition	
		Eyes Open	Eyes Closed
Locus of Control	Internal	9.50	11.70
	External	13.60	12.20

Note. A score of 4 represented a high likelihood for an internal explanation and a score of 28 represented a high likelihood that the reason for cheating was not an internal reason.
All of the summed score means are significantly different from the midpoint of the scale; smallest significant $t(34)=-3.59$, $p<.05$.

Free Response Causal Attributions.

A free response measure of causal attribution was also collected. Participants were asked why they thought other people had peeked while performing the throwing task. The

number of responses given by participants ranged from zero to seven.

Responses were coded by three independent raters according to the rating system that is listed in Appendix 9. All three raters agreed on the coding for 61% of the responses. A code was assigned to each elicited attribution on the basis of inter-rater majority agreement. Majority agreement accounted for 98% of the coded responses. Where agreement was not possible, the response was coded as unclassifiable.

Three separate 2 (locus of control) x 2 (throwing condition) analysis of variances were computed for the percentage of the total free response attributions. One analysis was computed for the free responses that were coded as external, a second analysis for the responses that were coded as internal, and a third analysis for the difference score which was computed by subtracting the percentage of external attributional responses from the percentage of internal attributional responses. The data for these analyses are presented in Table 10 and the ANOVA tables are presented in Appendix 4.

Table 10

Means for ANOVA of % Free Responses

(A) % Free Responses - External

		Throwing Condition Eyes Open	Eyes Closed
Locus of Control	Internal	.40	.40
	External	.14	.21

(B) % Free Responses - Internal

		Throwing Condition Eyes Open	Eyes Closed
Locus of Control	Internal	.38	.53
	External	.70	.61

(C) % Free Responses - Difference Scores

		Throwing Condition Eyes Open	Eyes Closed
Locus of Control	Internal	-.02	.13
	External	.56	.40

A main effect of locus of control for the generation of external causal attributions was found, $F(1,36)=5.84$, $p<.05$. Surprisingly, people with an internal locus of control

generated a greater percentage of external causal attributions (40%) than did people with an external locus of control(18%). A main effect of locus of control on the difference score was also found, $F(1,36)=5.30$, $p<.05$. Externally controlled individuals generated a greater percentage of internal as compared to external causal attributions (48%) than did internally controlled individuals (5%).

Three separate 2 (locus of control) x 2 (throwing condition) analysis of variances were computed for the absolute number of free response attributions: one for internal responses, a second for external responses, and a third for the difference score which was computed by subtracting the number of external causal attributions from the number of internal causal attributions generated by each participant. The data for these analyses are presented in Table 11 and the ANOVA tables are presented in Appendix 5.

A main effect of locus of control on the generation of internal causal attributions was found, $F(1,36)=5.86$, $p<.05$. Individuals with external locus of control beliefs generated a greater number of internal causal attributions (M=2.25) than did the internally controlled participants (M=1.25). A main effect of locus of control was also revealed for the difference score, $F(1,36)=9.40$, $p<.05$. Externally controlled individuals generated more internal as compared to external causal attributions (M=1.65) than did internally controlled individuals (M=0.0).

Table 11

Means for ANOVA of # Free Responses

(A) # Free Responses - External

		Throwing Condition	
		Eyes Open	Eyes Closed
Locus of Control	Internal	0.90	1.60
	External	0.90	0.60

(B) # Free Responses - Internal

		Throwing Condition	
		Eyes Open	Eyes Closed
Locus of Control	Internal	0.80	1.70
	External	2.20	2.30

(C) % Free Responses - Difference Scores

		Throwing Condition	
		Eyes Open	Eyes Closed
Locus of Control	Internal	-0.10	.10
	External	1.30	1.70

IV. Discussion

Perceptions of Control

Most of the research in the areas of attribution and locus of control has focused on achievement, conformity, and compliance. The nature of the relationship between locus of control beliefs and causal attributions for transgressive behavior has not been ascertained. Nonetheless, it was predicted that Heider's (1958) concept of assimilative projection would apply for transgressive behaviors.

In this study we attempted to demonstrate that perceptions of control could be altered by situational demands. The direct manipulation checks and supplementary data (see Appendix 1) showed that the experimental situation created the conditions of control that were intended. This study has replicated Julian, Lichtman, and Ryckman's (1968) study that demonstrated that perceptions of control could be altered by situational demands. Changes in perceptions of control were found to occur as a function of the throwing condition manipulation. The control manipulations (the eyes open and the eyes closed throwing conditions) interacted with personal control beliefs to produce shifts in participants' perceptions of control. People with internal beliefs in control were more sensitive to the situational manipulation (as indicated by significant differences in perceptions of control as a function of throwing condition and throwing performance) than were individuals with external control beliefs.

These results support Lefcourt's (1976) defensive hypothesis. Internally controlled people believe that their actions have some effect on whatever occurs and willingly accept responsibility for their actions even when they are confronted with failure. Because internally controlled people believe that they have some control over and hence responsibility for their actions, Lefcourt (1976) has hypothesized that people with internal beliefs in control are likely to view the outcome of all events as self-relevant. As a result, internally controlled people are likely to be sensitive to the conditions under which their behavior is and is not reinforced.

Externally controlled people, on the other hand, believe that their actions have little effect on whatever occurs and are unwilling to accept responsibility for their actions even when they are confronted with success. Because people with external beliefs in control assume that their behaviors have no effect on outcomes, they are less likely to be sensitive to the conditions under which behavior is reinforced. Behavioral consequences are not seen to be self-relevant for externally controlled people.

As Lefcourt (1976) explains:

> If one commonly attributes causes for outcomes to one's personal characteristics, then outcomes are self-relevant; that is, one's successes and failures are meaningful for learning about one's self. If one customarily attributes causality to external events,

> successes and failures should be of little matter as far as one's self-regard is concerned. Failures can be explained away in terms of others, circumstances or fate. For the external, outcomes should be of little relevance to self-evaluation since one's self is not held responsible for those outcomes. Consequently, it is reasonable to assume that externals will have little need to defend themselves against failure, but that internals may resort to various subterfuges if they are to retain self-respect subsequent to failure experiences. (p. 81)

Results of this study have confirmed this hypothesis. Our measures of perceived control for self revealed that people with internal beliefs in control were found to be more sensitive to the situational manipulation and to their actual level of performance than were individuals with external beliefs in control. This study therefore demonstrated that perceptions of control are more likely to be influenced by situational factors if the person had an internal locus of control than if the person had an external locus of control.

Perceptions of Similarity

The assumption of perceived similarity is crucial to Heider's (1958) concept of assimilative projection. The correlational analyses revealed a degree of similarity between participants perceptions of their own and others' performance. With the exception of perceptions of control

over throwing accuracy, degree of task anxiety, and desire to terminate participation in the task, (these factors differed as a function of locus of control x throwing performance; the control over throwing accuracy factor also differed as a function of locus of control x throwing condition [1]) participants did not perceive other participants to be dissimilar. Heider (1958) addressed the importance of both dispositional and situational factors to the principle of assimilation:

> ... the lots of P (the perceiver) and of O (the observer) may refer to a variety of matters. It (the lots) may refer to the general positive or negative state of the person. ... Or it may refer to events that befall them, as when P suffers bad luck and O is fortunate. ... Or it may refer to a more specific lot, such as money, health or work. (p. 285)

However, the Perception Questionnaire was slanted more toward measuring perceived similarity between individuals on the task and less with measuring perceived similarity with respect to personality traits. As a result, one cannot make conclusive statements about perceptions of similarity between the participants' personality and that of other participants in the study. Also, the questionnaire did not directly measure participants' perceptions of the transgressive participants. Nonetheless, the nature of the participants' spontaneous comments leads one to suspect that

---

[1] The supplementary analyses (Appendix 1) suggest that throwing performance orders the throwing condition effect.

perceptions of the participants who had cheated at the task were different from the perceptions of the other participants (as measured by the Perception Questionnaire).

Following from these results and their limitations, one can cautiously suggest that perceptions of dissimilarity did not exist between participants in general. However, the nature of the perceptions held for those participants who cheated was not ascertained. As a result, whether perceptions of similarity, Heider's basic assumption for his notion of assimilative projection, influenced the attribution process cannot be determined. A more direct measure of similarity is required.

Causal Attribution

Analyses of the causal attributions revealed that the attributional responses were primarily internal in causation. This finding supports Jones and Nisbett's (1972) actor-observer theory. According to this theory, for any given behavior, people are likely to form dispositional explanations for other people's behavior and situational explanations for their own behavior. Although participants did not cheat, we could have asked them to generate hypothetical reasons for why they might have cheated on the task to be able to compare reasons for their cheating with the reasons for other people's cheating. However, we did not do this and therefore we cannot compare differences in explanations for self and others. As such, we were unable to directly test for the actor-observer difference.

Nonetheless, our results indicate some support for Jones and Nisbett's theory.

Although the attributional responses measured were primarily internal in causality, the degree of internal causality differed as a function of the individual difference variable, locus of control. Participants generated attributions for other people's transgressive behavior which were opposite in nature to their own beliefs in control. Individuals with external beliefs in control generated the greatest number of internal causal attributions when asked to generate reasons for why people had peeked on the throwing task. Likewise, individuals with internal beliefs in control generated the greatest number of external causal attributions when asked to generate reasons for why people had peeked on the throwing task.

Heider (1958) predicted that assimilative projection occurs when others are perceived to be similar to the attributor. Although our measures of perceived similarity were not as sensitive as we would have desired and allowed us only to conclude that perceptions of dissimilarity did not exist, the attributional responses were opposite in nature to the perceivers perceptions of control. Thus, Heider's notion of assimilation was not supported.

However, based on Goldings' (1954) research, Heider (1958) proposed two concepts to describe the nature of the interaction between observer and actor. Goldings found that very happy people tended to view others as unhappy, that

very unhappy people tended to view others as happy, that moderately happy people tended to view others as happy, and that moderately unhappy people tended to view others as unhappy. Heider proposed the concepts of contrast and assimilation which he described as follows:

> In evaluating one's own lot, O's lot plays the role of a background or surrounding, which, through the effects of contrast, can serve either to enhance P's lot or to impair it. ... It is also possible that the background provided by O's lot may influence the evaluation of P's lot by a kind of assimilatory or diffussion effect. (p. 285)

Thus, it would appear that our findings support Heider's notion of contrast rather than assimilation. Because Heider did not address the conditions under which contrast as opposed to assimilation would occur, research designed to delineate these conditions is required.

A second explanation for these findings is proposed. Recall that most of the attribution and control literatures have explored helping and achievement oriented behaviors. It is possible that transgressive behaviors are treated differently from these prosocial behaviors. While we may view someone who behaves prosocially as similar to ourselves, we may see someone who transgresses as different from ourselves. Further, we may deny our own transgressive thoughts and behaviors while we emphasize them in others. Recall that our measure of perceived similarity did not

measure perceptions of similarity for the transgressive others. However, if it is the case that we perceive transgressive behavior differently, then we may perceive ourselves as different from the people who transgress. Suls (1984) who put forth the belief that people tend to view themselves as unique when compared to others, may have explained our results.

Our results revealed that how we view other people is not necessarily the same amongst all individuals. This may result from people's perceptions of their own uniqueness; that is, when people perceive other people to be different from themselves they make attributions about the other people's transgressive behavior that are opposite in nature to their beliefs about themselves. People may wish to perceive themselves as unique especially when reference is being made to negative behaviors. In order to substantiate this claim, research designed to distinguish between Sul's uniqueness and Heider's (1958) contrast concepts is required.

Regardless of which concept is employed to interpret these results, one fact remains undisputed, that is, this finding is limited to the study of transgressive behavior. Whether individual differences in attributions apply to other situations merits investigation, particularly within the actor-observer paradigm. Further, because an artificial game playing situation was used, tasks with more ecological validity need to be examined.

V. References

Curtis, R.C., & Schildhaus, J. (1980). Children's attributions to self and situation. Journal of Social Psychology, 110(1), 109-114.

Davis, W.L., & Davis, D.E. (1972). Internal-external control and attribution of responsibility for success and failure. Journal of Personality, 40, 123-136.

deCharms, R. (1968). Personal causation. New York: Academic Press.

deCharms, R., Carpenter, V., & Kuperman, A. (1965). The 'origin-pawn' variable in person perception. Sociometry, 28, 241-258.

Goldings, H.F. (1954). On the avowal and projection of happiness. Journal of Personality. 23, 30-48.

Heider, F. (1958). The psychology of interpersonal relations. New York: Wiley.

James, W.H. (1957). Internal versus external control of reinforcement as a basic variable in learning theory. Unpublished doctoral dissertation, Ohio State University as cited in Lefcourt, H.M., 1976.

Jones, E.E., & Nisbett, R.E. (1972). The actor and the observer: Divergent perceptions of the causes of behavior. In Jones, E.E., Kanouse, D.F., Kelly, H.H., Nisbett, R.E., Valins, S., & Weiner, B. (Eds.), (1972). Attribution: Perceiving the causes of behavior. Morristown, N.J.: General Learning Press.

Julian, J.W., Lichtman, C.M., & Ryckman, R.M. (1968). Internal-external control and the need to control. Journal of Social Psychology, 76, 43-48.

Kahle, L.R. (1980). Stimulus condition self-selection by males in the interaction of locus of control and skill-chance situations. Journal of Personality and Social Psychology, 38(1), 50-56.

Kaiser, D.L. (1975). Internal-external control and causal attributions of own and others' performance. Psychological Reports, 37, 423-426.

Kielhbauch, J.B. (1967). Selected changes over time in internal-external control expectancies in a reformatory population. Unpublished doctoral dissertation, Kansas State University.

Lefcourt, H.M. (1976). Locus of Control. Hillsdale, N.J.: Lawrence Erlbaum Associates, Inc.

Lefcourt, H.M., & Ladwig, G.W. (1966). Alienation in Negro and white reformatory inmates. Journal of Social Psychology, 68, 153-157.

McNeill, B.W., & Jacobs, M. (1980). Effects of locus of control, sex and failure on causal attribution. Psychological Reports, 46, 1137-1138.

Nicholls, J.G. (1975). Causal attributions and other achievement-related cognitions: Effects of task outcome, attainment value, and sex. Journal of Personality and Social Psychology, 31, 379-389.

Phares, E.J. (1957). Expectancy changes in skill and chance situations. Journal of Abnormal and Social Psychology, 54, 339-342.

Phares, E.J. (1962). Perceptual threshold decrements as a function of skill and chance expectancies. Journal of Psychology, 53, 339-407.

Phares, E.J. (1976). Locus of Control in Personality. Morristown, N.J.: General Learning Press.

Phares, E.J., & Lamiell, J.T. (1975). Internal-external control, interpersonal judgements of others in need, and attribution of responsibility. Journal of Personality, 43, 23-38.

Phares, E.J., & Wilson, K.G. (1972). Responsibility attribution: role of outcome severity, situational ambiguity, and internal-external control. Journal of Personality, 40, 392-406.

Phares, E.J., Wilson, K.G., & Klyver, N.W. (1971). Internal-external control and the attribution of blame under neutral and distractive conditions. Journal of Personality and Social Psychology, 18, 285-288.

Rotter, J.B. (1954). Social learning and clinical psychology. Englewood Cliffs, N.J.: Prentice Hall.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80(1).

Rotter, J.B., Liverant, S., & Crowne, D.P. (1961). The growth and extinction of expectancies in chance controlled and skilled tasks. Journal of Psychology, 52, 161-177.

Schiavo, R.S. (1973). Locus of control and judgements about another's accident. Psychological Reports, 32, 483-488.

Seeman, M. (1963). Alienation and social learning in a reformatory. American Journal of Sociology, 69, 270-284.

Sobel, R.S. (1974). The effects of success, failure, and locus of control on postperformance attribution of causality. Journal of General Psychology, 91, 29-34.

Sosis, R.H. (1974). Internal-external control and the perception of responsibility of another for an accident. Journal of Personality and Social Psychology, 30, 393-399.

Suls, J. (1984, August). Notes on the occasion of social comparisons thirtieth birthday. Paper presented at the symposium of the American Psychological Association, Toronto, Ontario.

Weiner, B., Nierenberg, R., & Goldstein, M. (1976). Social learning (locus of control) versus attributional (causal stability) interpretations of expectancy of success. Journal of Personality, 44, 52-68.

VI. Appendix 1

Inter-item Reliability of Perception Questionnaire

The Perception Questionnaire was designed to measure a variety of factors which are believed to affect task performance and to determine the effectiveness of the paradigm. To determine the relationships among these factors, inter-item correlations were computed. The individual correlations are presented in Table 12.

Table 12

Inter-Item Correlations for Perception Questionnaire

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
Q2	.54**										
Q3	.45**	.64**									
Q4	.04	.06	.11								
Q5	.06	.18	.25	.69**							
Q6	-.39*	-.49**	-.35*	-.00	-.09						
Q7	.11	-.01	-.02	.00	.02	.01					
Q8	.11	-.13	-.23	.08	-.09	.30	.24				
Q9	.34*	.65**	.51**	.16	.26	-.39	.10	-.12			
Q10	-.27	-.48**	-.26	-.60**	-.60**	.32*	.26	.20	-.31		
Q11	.53**	.12	.53**	.22	.26	-.30	-.09	.04	.25	-.25	
Q12	.35**	.49**	.42**	-.01	.01	-.29	.06	.01	.34	-.25	
Q13	.12	.21	.17	-.05	-.10	-.35*	.06	-.14	-.05	-.09	
Q14	.02	.10	.02	.63**	.53**	.10	-.03	.01	.00	-.45**	
Q15	-.11	.05	.07	.63**	.75**	.02	-.05	-.11	.07	-.42	
Q16	-.10	-.35*	-.10	-.01	.04	.69**	.01	.26	-.23	.12	
Q17	-.13	-.31	-.06	.03	.19	-.08	.49**	.05	-.07	.23	
Q18	.10	-.27	-.11	.10	-.02	.37*	.06	.73**	-.23	.16	
Q19	.28	.54**	.32*	-.03	.03	-.19	.06	.12	.41**	-.26	
Q20	-.14	-.42**	-.33*	-.63**	-.51	.34*	.19	.26	-.37*	.73**	

Note. * indicates p<.05 and ** indicates p<.01.
Table continued on next page.

Table 12 Continued

Inter-Item Correlations for Perceptions Questionnaire

	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Q12	.33*									
Q13	.06	.25								
Q14	.13	-.18	.02							
Q15	.20	-.10	.05	.70**						
Q16	-.04	-.19	-.61**	-.05	-.10					
Q17	.17	-.20	-.17	.07	.16	.06				
Q18	.29	-.11	-.30	.01	-.08	.40**	.18			
Q19	.14	.40**	.22	-.03	.05	-.11	-.19	-.18		
Q20	-.22	-.03	-.03	-.44	-.46**	.20	.17	.26	-.25	

People who found the throwing task to be interesting were less likely to desire to quit, were more likely to believe that other participants would be highly motivated and interested in the task, and were less likely to believe that others would desire to quit. The more interested in the task others were perceived to be, the less they were perceived to desire to stop participating in the task.

The more motivated participants were, the more interesting the task was found to be, the more motivated and the more interested other participants were believed to be. Further, the more motivated participants were, the less they wanted to quit and the less they believed that other people wanted to quit. The more motivated other participants were thought to be, the more interested in the task they were also perceived to be.

People who found the task to be difficult were more likely to believe that other people would also find the task to be difficult. People who found the task to be easy tended to believe that others would also find the task to be easy. Further, the less difficult people thought others would find the task, the less frustrated others were believed to be.

People who perceived that they performed well on the throwing task were more likely to perceive that they had a great deal of control over their throwing accuracy, that other people's performance would be similar to their own, and that other people's performance reflected their throwing skills. People who perceived that they performed poorly on

the throwing task tended to perceive that they had little control over their throwing accuracy, that others' performance was dissimilar to their own, and that others' performance was the result of luck. The poorer others' performance was perceived to be, the more difficult others were expected to find the task.

The more task anxious and frustrated people felt about their own performance, the more anxious and frustrated they tended to believe other people would feel. Further, the more people wanted to stop the task, the more they believed that other people wanted to stop and the less they believed that other people were motivated and interested in the task.

People who perceived their usual performance on throwing tasks to be the result of skill were more likely to perceive that their performance on the task was the result of skill, that they were performing well on the task, and that other participants' performance was similar to their own. People who perceived their usual performance on throwing tasks to be the result of luck were more likely to perceive that their performance on this throwing task was the result of luck, that they were performing poorly on the task, and that other people's performance was dissimilar to their own.

People who perceived their performance on this throwing task to be the result of skill tended to perceive that they performed well, that they had more control over their throwing accuracy, that others' performance was the result

of skill, and that other participants had lots of control over their throwing accuracy. People who perceived their performance on the task to be the result of luck tended to perceive that they performed poorly, that they had less control over their throwing accuracy, that others' performance was the result of luck, and that other participants had little control over their throwing accuracy.

People who perceived their performance to reflect their skills and abilities tended to find the task to be easy, had little desire to quit, and believed that other participants also would not want to quit. People who perceived that their performance was the result of luck tended to find the task to be more difficult, had greater desire to quit, and believed that other participants would want to quit.

The more control people felt they had over their own throwing accuracy, the more control they believed other people had. Further, the more that others' throwing performance was believed to reflect skills and abilities, the more other people were believed to have control over their throwing accuracy.

A number of supplementary variables were measured to determine the effectiveness of the throwing paradigm. The coherent and consistent pattern of these results demonstrates that the paradigm was working as was expected. The variables were not manipulated in a haphazard fashion nor in any undesirable systematic fashion.

VII. Appendix 2

Perception Questionnaire Analyzed as a Function of Locus of Control and Throwing Condition

To determine the effects of the manipulation and control beliefs on perceptions of the task, a 2 (locus of control) x 2 (throwing condition) analysis of variance was performed on the responses for each question in the Perception Questionnaire. Main effects of condition, presented in Table 13, revealed that people in the eyes open condition believed that they performed better, $F(1,36)=4.22$, $p<.05$, perceived the task to be easier, $F(1,36)=5.54$, $p<.05$, and perceived that other participants would find the task easier, $F(1,36)=11.74$, $p<.01$, than did people in the eyes closed condition.

Table 13

Task Perceptions as a Function of Throwing Condition

Dimension	Question#	Condition Open	Condition Closed
Skill-Luck	2	3.25	4.35
Achievement	3	4.40	5.25
Task Difficulty	6	5.35	4.30
Others' Difficulty	16	5.30	3.95

Note. For the skill question, a response of 1 indicated skill/ability and a response of 7 indicated luck. For the achievement question, a response of 1 indicated very well and a response of 7 indicated very poorly. For the difficulty questions, a response of 1 indicated very difficult and a reponse of 7 indicated very easy.

The 2x2 analysis of variance revealed a main effect of locus of control for participants perceptions of others'

task anxiety, $F(1,36)=4.35$, $p<.05$. Internally controlled participants perceived others to be less anxious (M=4.95) than did externally controlled participants (M=4.15). Intuitively, internally controlled people should perceive themselves as having more control over the situation and therefore should be expected to feel less threatened and anxious than the externally controlled participants.

The 2x2 analysis of variance revealed a locus of control x throwing condition interaction for perceptions of other people's performance, $F(1,36)=6.15$, $p<.05$. The mean scores are presented in Table 14. There were no differences among participants with internal control beliefs in either the eyes open or the eyes closed conditions or with participants with external control beliefs assigned to the eyes open condition. However, participants with external control beliefs in the eyes closed condition perceived that others would perform more poorly than did the other groups.

Table 14

Mean Ratings of Perceptions of Other People's Performance as a function of Locus of Control x Throwing Condition

		Locus of Control	
		Internal	External
Condition	Open	3.20a	3.20a
	Closed	3.80a	4.90b

Note. A response of 1 indicated very well and a response of 7 indicated very poorly.
Means with different subscripts differ significantly at $p<.05$ by Newman Keuls post hoc analysis.

A significant interaction between locus of control and throwing condition, $F(1,36)=7.18$, $p<.05$, was revealed for responses to the question pertaining to the amount of control participants felt they had over their throwing accuracy. This interaction is presented in Table 15. People with internal control beliefs who were assigned to the eyes closed condition perceived themselves to have less control over their throwing accuracy than did people with internal control beliefs who were assigned to the eyes open condition. People with external control beliefs did not differ in their perceptions of degree of control.

Table 15

Mean Ratings of Perceptions of the Amount of Control over One's Own Throwing Accuracy

		Condition	
		Open	Closed
Locus of Control	Internal	3.40a	4.90b
	External	4.20ab	3.60ab

Note. A response of 1 indicated lots of control; a response of 7 indicated no control.
Means with different subscripts differ significantly at $p<.05$ by Newman Keuls post hoc analysis.

VIII. Appendix 3

Perception Questionnaire Analyzed as a Function of Achievement

Locus of control has been studied extensively with respect to tasks defined a priori to participants as either one of skill or luck, or where participants are informed of their achievement (i.e., success or failure) on some task upon its completion. In this study, participants received visual feedback of their throwing performance although they were not told whether they performed well or poorly in relation to other participants. Nonetheless, actual performance may have influenced participants' perceptions of the task. As we can see from Table 16, there were no low performers in the eyes open condition and no high performers in the eyes closed condition.

Table 16

Frequency Distribution of Scorers by Locus of Control and Throwing Condition

Throwing Condition	Locus of Control	Frequency of Throwing Peformance Low	Medium	High
Open	Internal	0	4	6
Open	External	0	5	5
Closed	Internal	7	3	0
Closed	External	7	3	0

For this reason, a one-way analysis of variance for each question in the Perception Questionnaire was computed as a function of participants' throwing accuracy. Main effects of throwing performance were found for perceptions of throwing ability, perceptions of achievement, perceptions of task

difficulty, perceptions of control over throwing accuracy, and for perceptions of others' achievement, others' difficulty, and others' control over accuracy (See Table 17).

Table 17

Mean Scores for Perception Questions as a Function of Throwing Performance

Dimension	Question Number	Throwing Performance Low	Medium	High
Skill-Luck	2	4.86a	3.53b	2.82b
Achievement	3	5.71a	4.73b	3.82c
Task Difficulty	6	4.07a	4.73a	5.91b
Control/Accuracy	9	4.93a	3.47b	3.64b
Others' Achievement	13	4.36a	3.60b	3.27b
Others' Difficulty	16	4.00a	4.60ab	5.45b
Others Control/Acc.	19	4.57a	3.20b	3.27b

Note. For the skill-luck question, a response of 1 indicated skill and ability and a response of 7 indicated luck. For the achievement questions, a response of 1 indicated very well and a response of 7 indicated very poorly. For the task difficulty questions, a response of 1 indicated very difficult and a response of 7 indicated very easy. For the control over throwing accuracy questions, a response of 1 indicated lots of control and a response of 7 indicated no control.
Means with different subscripts differ significantly at $p<.05$ by Newman Keuls post hoc analysis.

The low scorers, as compared to the medium and high scorers, perceived that their performance was more the result of chance, $F(2,37)=13.627$, $p<.01$; that they had less control over their throwing accuracy $F(2,37)=6.419$, $p<.01$; that others would feel that they had less control over their throwing accuracy, $F(2,37)=5.413$, $p<.01$; that they performed poorly, $F(2,37)=8.717$, $p<.01$; and that others would also

perform poorly, $F(2,37)=5.091$, $p<.05$. The medium and high scorers shared perceptions on all of the above measures except for their perceptions of their own performance where high scorers perceived themselves to have performed better than did the medium scorers. The medium scorers' perceptions of their performance lay between those of the high and low scorers. Further, while the low and medium scorers perceived the task to be equally difficult for themselves, $F(2,37)=6.00$, $p<.01$, the medium scorers thought that other people would find the task to be somewhat easier than did the low scorers, $F(2,37)=3.75$, $p<.05$. The high scorers perceived the task to be the least difficult both for themselves and for others.

Even though participants did not receive verbal feedback as to their level of perfomance on the throwing task, the consistent pattern of these results demonstrates that perceptions about task performance were influenced by actual throwing performance.

IX. Appendix 4

Locus of Control x Throwing Condition ANOVA for % Free Response Attributions

Table 18

Analyses of the External Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	.49	1	.49	5.84	.02
Throw Condition	.01	1	.01	0.13	.72
LC X Cond	.01	1	.01	0.13	.72
Error	3.02	36	.08		
Total	3.54	39	.09		

Table 19

Analyses of the Internal Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	.41	1	.41	3.39	.07
Throw Condition	.01	1	.01	0.06	.80
LC X Cond	.14	1	.14	1.12	.30
Error	4.35	36	.12		
Total	4.90	39	.13		

Table 20

Analyses of the Difference Score Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	3.33	1	3.33	7.50	.01
Throw Condition	0.01	1	0.01	0.03	.88
LC X Cond	0.40	1	0.40	0.91	.35
Error	15.98	36	0.44		
Total	19.73	39	0.51		

Note. Difference score is calculated by internal - external.

X. Appendix 5

Locus of Control x Throwing Condition ANOVA for # Free Response Attributions

Table 21

Analyses of the External Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	2.50	1	2.50	2.60	.12
Throw Condition	0.40	1	0.40	0.42	.52
LC X Cond	2.50	1	2.50	2.60	.12
Error	34.60	36	0.96		
Total	40.00	39	1.03		

Table 22

Analyses of the Internal Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	10.00	1	10.00	5.86	.02
Throw Condition	2.50	1	2.50	1.47	.23
LC X Cond	1.60	1	1.60	0.94	.34
Error	61.40	36	1.71		
Total	75.50	39	1.94		

Table 23

Analyses of the Difference Score Responses

Source of Variation	SS	DF	MS	F	p
Locus of Control	27.23	1	27.23	9.40	.00
Throw Condition	0.23	1	.23	0.08	.78
LC X Cond	0.03	1	0.03	0.00	.93
Error	104.30	36	2.90		
Total	131.78	39	3.80		

Note. Difference score is calculated by internal - external.

XI. Appendix 6

The Rotter Internal-External Locus of control Scale

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. For each numbered question make an X on the line beside either a or b, whichever you choose as the statement most true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices. Remember to select the alternative which you personally believe to be more true.

I more strongly believe that:

1. _____ a. Children get into trouble because their parents punish them too much.

   _____ b. The trouble with most children nowadays is that their parents are too easy with them.

2. _____ a. Many of the unhappy things in people's lives are partly due to bad luck.

   _____ b. People's misfortunes result from the mistakes they make.

3. _____ a. One of the major reasons why we have wars is that people don't take enough interest in politics.

   _____ b. There will always be wars, no matter how hard people try to prevent them.

4. _____ a. In the long run people get the respect they deserve in this world.

   _____ b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. _____ a. The idea that teachers are unfair to students is nonsense.

   _____ b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. _____ a. Without the right breaks one cannot be an effective leader.

   _____ b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. _____ a. No matter how hard you try some people just don't like you.

   _____ b. People who can't get others to like them don't understand how to get along with others.

8. _____ a. Heredity plays the major role in determining one's personality.

   _____ b. It is one's experiences in life which determine what they're like.

9. _____ a. I have often found that what is going to happen will happen.

_____ b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. _____ a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

_____ b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. _____ a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

_____ b. Getting a good job depends mainly on being in the right place at the right time.

12. _____ a. The average citizen can have an influence in government decisions.

_____ b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. _____ a. When I make plans, I am almost certain that I can make them work.

_____ b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. _____ a. There are certain people who are just no good.

_____ b. There is some good in everybody.

15. _____ a. In my case getting what I want has little or nothing to do with luck.

_____ b. Many times we might just as well decide what to do by flipping a coin.

16. _____ a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

_____ b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. _____ a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

_____ b. By taking an active part in political and social affairs the people can control world events.

18. _____ a. Most people can't realize the extent to which their lives are controlled by accidental happenings.

_____ b. There really is no such thing as luck.

19. _____ a. One should always be willing to admit his mistakes.

_____ b. It is usually best to cover up one's mistakes.

20. _____ a. It is hard to know whether or not a person really likes you.

_____ b. How many friends you have depends upon how nice a person you are.

21. _____ a. In the long run the bad things that happen to us are balanced by the good ones.

_____ b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. _____ a. With enough effort we can wipe out political corruption.

_____ b. It is difficult for people to have much control over the things politicians do in office.

23. _____ a. Sometimes I can't understand how teachers arrive at the grades they give.

_____ b. There is a direct connection between how hard I study and the grades I get.

24. _____ a. A good leader expects people to decide for themselves what they should do.

_____ b. A good leader makes it clear to everybody what their jobs are.

25. _____ a. Many times I feel that I have little influence over the things that happen to me.

_____ b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. _____ a. People are lonely because they don't try to be friendly.

_____ b. There's not much use in trying too hard to please people, if they like you, they like you.

27. _____ a. There is too much emphasis on athletics in high school.

_____ b. Team sports are an excellent way to build character.

28. _____ a. What happens to me is my own doing.

_____ b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. _____ a. Most of the time I can't understand why politicians behave the way they do.

_____ b. In the long run the people are responsible for bad government on a national as well as on a local level.

Note that the Rotter Internal-External Locus of Control Scale is a 23-item forced choice questionnaire with 6 filler items adapted from the 60-item James Scale. It is scored in the external direction, that is, the higher the score, the more external the individual.

XII. Appendix 7

Perception Questionnaire

Performance is influenced by a variety of factors such as motivation and interest in the task. For this throwing task, these factors interact with memory ability and complicate an interpretation of the results. In order to "factor out" some of these influences and be able to interpret the results of your performance as a function of memory, please rate your own and others performance according to the factors listed below:

1. To what extent is your usual performance on throwing tasks reflective of your ability?

skill/ability						luck
1	2	3	4	5	6	7

2. To what extent was your performance on the throwing task due to:

skill/ability						luck
1	2	3	4	5	6	7

3. How well do you think you performed on the throwing task?

very well						very poorly
1	2	3	4	5	6	7

4. How motivated were you to perform the task?

very motivated				not at all motivated		
1	2	3	4	5	6	7

5. How interesting was the throwing task?

very interesting				not at all interesting		
1	2	3	4	5	6	7

6. How difficult was the throwing task?

very difficult						very easy
1	2	3	4	5	6	7

7. How anxious did you feel while throwing the balls in this task?

very anxious						not at all anxious
1	2	3	4	5	6	7

8. How frustrated did you feel while performing the task?

very frustrated						not at all frustrated
1	2	3	4	5	6	7

9. How much control do you feel you had with respect to your throwing accuracy?

lots of control						no control
1	2	3	4	5	6	7

10. While performing the task, did you at anytime want to stop?

very much wanted to stop						didn't even consider stopping
1	2	3	4	5	6	7

11. Compared to other participants in the study, how similar was your performance?

very similar						not at all similar
1	2	3	4	5	6	7

12. To what extent is other people's performance on this task likely to reflect their true ability?

ability/skill						result of luck
1	2	3	4	5	6	7

13. How well do you think other people would perform on the throwing task?

very well						very poorly
1	2	3	4	5	6	7

14. How motivated would other people be to perform this task?

very motivated						not at all motivated
1	2	3	4	5	6	7

15. How interesting would other people find this task?

very interesting						not at all interesting
1	2	3	4	5	6	7

16. How difficult would other people find the throwing task?

very difficult very easy

1 2 3 4 5 6 7

17. How anxious would other people feel while throwing balls in this task?

very anxious not at all anxious

1 2 3 4 5 6 7

18. How frustrated do you think other people would feel while performing the throwing task?

very frustrated not at all frustrated

1 2 3 4 5 6 7

19. How much control do you think other people will feel they have over their throwing accuracy?

lots of control no control

1 2 3 4 5 6 7

20. Do you think that other people would want to terminate their participation in such a task?

very much want to stop won't even consider stopping

1 2 3 4 5 6 7

XIII. Appendix 8

Causal Attribution Questionnaire

Circle the number which corresponds to how likely you think it is that the statement listed explains the real reason for people's cheating on the task. 1 means that it is very likely that the statement explains the real reason for the cheating and 7 means that it is not at all likely that the statement explains the real reason for the cheating:

	Very likely that the statement explains the real reason for cheating					Not at all likely that the statement explains the real reason for cheating	
	1	2	3	4	5	6	7
1.	It is a long time for people to have to concentrate. People peek to re-establish their concentration.	1	2	3	4	5	6	7
2.	The task demands that people keep their eyes closed for too long of a time period. It is hard to keep your eyes closed for that length of time.	1	2	3	4	5	6	7
3.	People peek while performing the throwing task because they were taught to keep their eyes open when they participated in similar activities.	1	2	3	4	5	6	7
4.	People peek in order to perform the throwing task more accurately.	1	2	3	4	5	6	7
5.	People peek to avoid feeling embarrassed by their performance.	1	2	3	4	5	6	7

6. The task is boring and as a result participants' minds wander and they simply forget to keep their eyes closed. 1 2 3 4 5 6 7

XIV. Appendix 9

Free Response Coding System

Three independent coders were presented with the following instructions:

> Your task is to classify each statement according to its locus of causality. Some of the statements may reflect a person's attempt to gain control over a situation and as such may reflect a trait, a disposition or a characteristic of the person. In these cases, code the statement with a 1. Other statements may reflect a chance occurrence, some aspect of the situation, or a demand characteristic. Code these statements with a 2. Further, some statements may be vague in that you may find that they could reflect either the person's attempt to gain control over the situation or some situational demand. In these cases, code the statement with a 0. For example, a score of 1 would be given to the following statement: people feel they could do better, they peek to do better. A score of 7 would be given to this statement: people open their eyes because the instructions given to them to keep their eyes closed were not clear.

XV. Appendix 10

Cover Story used to elicit Causal Attributions

Thanks for your cooperation and assistance. Just before you leave, I would like to solicit your help on one more matter. I've been having a lot of difficulty with this study as a number of people in the closed eye condition have been opening their eyes and peeking while performing the throwing task. This peeking presents me with a problem because I am trying to study memory, and if people are performing the task after a shorter delay period than other people, I can not compare their results.

What I've thought of doing is to put the people who peeked into a separate group for the purpose of data analysis. This group will have relied on their memory for a shorter period of time than the experimental group (eyes closed) and a longer period of time than the control group (eyes open). However, I didn't plan my study this way. Therefore, in order to include this third group, I need to explain why people peeked while performing the throwing task. Only then can I include their results in my write up.

I have been working on this study for such a long time that I am having a difficult time generating reasons for people's peeking. I'm hoping that someone with a fresh perspective who knows something about the study might be able to help me out. Specifically, I'm

hoping that you'll be able to provide me with some reasons why people would cheat on the task. So, why do you think people peeked while performing the throwing task?

After responses were given and recorded, participants were presented with the Causal Attribution Questionnaire under the guise that several reasons for people's peeking were required and the researcher had been unsure of participants' ability to generate explanations for the cheating.

XVI. Appendix 11

Debriefing Questionnaire

I have a few brief questions for you before we go on.

1. First, was there anything about the procedure that was unclear to you?

2. Did anything about the procedure puzzle you?

3. Could you tell me in your own words what you think the purpose of the study was?

4. Did it ever occur to you that I might not have told you all there is to know about this study? (If answers yes, ask what.)

XVII. Appendix 12

Debriefing

Initially I told you that I was interested in studying the effects of memory decay on one's ability to recall accurately and react to the spatial environment. I later mentioned that there were some difficulties with the study as a number of participants had cheated while performing the throwing task. I then asked you to try to help me understand this behavior ostensibly so that I could use the results of this study. However, I asked you for this information because I am interested in studying how people explain other people's cheating behavior.

There exists a theory in social psychology which states that people tend to explain behavior in terms of either skill and ability or chance and luck. This belief that an event is either the result of skill or of luck is called locus of control. What I am interested in knowing is whether people explain other people's behavior, specifically cheating behavior, according to their own beliefs in control. My hypothesis is that participants who perceive their performance on the throwing task to reflect their skills and abilities will likely explain other people's cheating in terms of characteristics of the people who cheated whereas participants who perceive their performance to be the result of chance or luck will likely explain the cheating in terms of factors given by the situation which suggested cheating on the task.

In order to test the hypothesis, all participants were assigned to one of two control conditions. I earlier told you that some people performed the throwing task with their eyes open and that other people performed the task with their eyes closed. Thus, some people were assigned to an internal control condition, that is, eyes open, while other people were assigned to an external control condition which was eyes-closed. Therefore, the independent variable in this study is the control condition (either internal or external) in which the throwing task is performed. What I tried to do in this study was to manipulate your perceptions of control according to the throwing condition to which you were assigned in order to see whether your control beliefs concerning the task reflected in the attributions you made about the cheating behavior. Therefore, the dependent variable in this study is the causal attributions which you formulated, that is, the reasons and the ratings you gave to explain the cheating. As I mentioned earlier, what I am expecting to have happen is that people who had more control in the throwing task (eyes open/internal control condition) will tend to attribute the cause of the cheating to factors within the cheater's control. Likewise, for people in the external control condition, I am expecting them to attribute the cause of the cheating to factors outside the cheater's control. There is one thing that I should tell you before we continue. That is, that there really were no other people who cheated on the task.

Now that you understand the real purpose of the study, I'll try to explain why I did not come right out and ask you what you thought about people's cheating on a task, for instance, cheating on an exam and why I used the throwing task as a cover. First, I want to ask you a question. If you had known what I was really studying, would you have responded differently? Well, most people like to please the researcher and therefore, they try to give the answer they believe the researcher wants to hear. I want to know what you would really think about somebody's cheating on the task rather than what you may think I want to know. Because of this, I worked really hard designing this study to prevent all participants from discovering the independent and dependent variables. Is there anything that you want to ask me about this study?

Just before you go, I am going to ask you not to talk to anyone about this study because if the real purpose of the study is known, the study won't work and my results will be invalid if some people do know the true purpose of the study and others don't. Also, I want you to know that all of your responses will be kept confidential. I want to thank you for participating in this study. Should you have further questions about this study after having read the reading on reserve in Cameron Library, you may contact me, Janice Levine, in room P537 Bio. Sci. The participant was then dismissed.